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SUBJECT: WHEN JORDAN RUMBLES, THINGS MIGHT CRUMBLE

1. (U) Summary. Although Jordan's history is littered with seismic activity, Jordanian officials and builders believe that present building codes are insufficient to protect residential buildings and public structures from an earthquake, with potentially major humanitarian consequences. While the Ministry of Public Works and Housing is reassessing building codes to minimize damage from an earthquake, they requested further assistance to modernize Jordan's current codes and to obtain seismic data to assess the seismic hazard of particular areas. End Summary.

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Earthquake Zone  
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2. (U) Jordan is home to the Dead Sea Rift system and its associated branching faults, a fault system similar to the San Andreas fault system in California. The Dead Sea Rift is the border between the Arabian and African plates and is associated with some of the highest concentration of earthquakes in the region. In the last twenty years, major earthquake swarms took place in Jordan in 1983, 1993 and 1995 with other smaller seismic activity at scattered times. Aqaba, Jordan's only port, lies directly on the Dead Sea fault, and branching faults extend throughout the region including areas surrounding Amman and Jerash. Records of seismic activity show a high concentration of earthquakes in the Aqaba area and smaller earthquakes throughout Jordan. Currently, research is being undertaken by the Natural Resource Authority, under a USAID-funded MERC project, to survey the fault system in Aqaba to assess the seismic hazard to the city.

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Codes Insufficient, Inadequately Enforced  
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3. (SBU) The National Building Council (NBC) determines the building codes for Jordan and comprises officials of the Ministries of Public Works and Housing, Transportation, Energy, Environment, and Municipalities in addition to the Mayor of Amman, the Chairman of the Jordan Engineers Association and the Chairman of the Jordanian Contractors Association. Jordanian residential building codes are based on British codes -- which do not account for earthquakes, as England is not in a seismically active area.

4. (SBU) In addition to inappropriate codes for the local earthquake risk, ministry and association officials told us that enforcement mechanisms are inadequate. Current procedures require builders to go through a series of checks in order to construct a residential property in Jordan. First, building designers must complete a brief survey of the land and complete a building plan. Next the plans must be taken to the Engineers Association to ensure that the designs meet building codes. (Note: The Head of the Technical Department of the Contractors Association Omar Mohi-Al-Din Al-Masr told us that the Engineers Association only conducts a superficial assessment of the designs, and mainly uses this service as an income generator for their organization.) Finally, designs are taken to the appropriate municipality to determine if the buildings satisfy zoning requirements - such as lot sizes and building heights. There is no requirement for supervision of contractors' adherence to the approved building plans, and consequently many contractors are known to cut corners during construction to lower costs.

5. (SBU) Given the inadequate codes and enforcement, quality of construction and adherence to code varies by neighborhood and income level. The Director of Codes and Standards, Dr. Jamal Qtaishat, believes that most of the residential buildings in relatively prosperous west Amman would survive a moderate earthquake, while many of the multistory cinderblock buildings in poorer east Amman and outside the city would not. Engineers from Amman Municipality, the Contractors Association, and the Engineers Association echoed this sentiment. For example, questioned about the likelihood of buildings in Amman surviving an earthquake, the Contractors

Association's al-Masr told Econoff, "Thank God we are a religious people, because it will be a disaster."

16. (SBU) In contrast to residential construction, many government buildings, such as ministries and hospitals, and large construction projects face a stricter set of building codes and practices that better protect them from earthquake damage. Until recently, Jordan did not have building codes for public structures other than buildings, such as dams, roads or bridges. The Italian-financed \$55 million Karameh Dam was already completed when it was discovered it was built on a major fault line. Ironically, Qtaishat claimed that some Arab countries with similar geological hazards have adopted the inadequate Jordanian building codes.

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Change is on the Way  
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17. (U) On April 1, 2003 a new law entered into effect that gave the NBC the authority to prescribe building codes for all structures and incorporated text from model International Building standards specifically for earthquake risk. The new law designated the Jordanian Engineers Association as the authority to audit and review blueprints for all structures with a total surface area of more than 150 square meters. The law also assigns to municipalities responsibility for completing spot checks on construction to ensure that contractors are abiding by approved blueprints and technical standards. The new law assigns legal liability to municipalities and the Engineers Association if structural damage occurs. Although the law has entered into effect, Qtaishat does not expect the law to be fully implemented and enforced for at least a few months.

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But Outside Help is Needed  
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18. (U) Qtaishat expressed his desire to further improve building codes in Jordan. He stressed that receiving general guidance from civil engineers with expertise in seismically active areas would be helpful, particularly since NBC is already rethinking its approach to building codes. Furthermore, he stated that engineers in Jordan also needed training in how to design earthquake resistant buildings. Qtaishat also asked for help in obtaining seismic data that would allow for a better evaluation of earthquake risk. He repeatedly noted USAID-funded work in Turkey as an example of how the USG could potentially help Jordan.  
GNEHM